PreCalc Ch 5 Review WS #1 Name_____ Per _____

1. Find all solutions to the equation in the interval [0,2π).

a) $4cos^2x = 3$ b)$sinxtan^2x = sinx$ c) $\sin\left(x+\frac{\pi}{6}\right) - \sin\left(x-\frac{\pi}{6}\right) = \frac{1}{2}$

2. Find all solutions to the equation, using your calculator in the interval [0,2π). Round to two decimal places.

a) cos2x+5cosx=2 b) sin3x=sinx c) 5sin2x-12cos2x=0

3. Find the exact value.

a) $\sin\frac{\pi}{12}$ b) cos(105°) c) sin60°+sin30°

4. Write the expression as the sine, cosine, or tangent of an angle.

a)$\frac{tan20^o - tan15^o}{1+tan20^o tan15^o}$ b) $\sin\left(\frac{\pi}{4}\right)\cos\left(\frac{\pi}{6}\right) + \cos(\frac{\pi}{4})\sin(\frac{\pi}{6})$ c) cos30°cos25°-sin30°sin25°

5. Prove the following identities.

a) $\frac{1+tanx}{tanx-1} = \frac{cotx+1}{1-cotx}$

b) $2\sin\theta\cos^3\theta + 2\sin^3\theta\cos\theta = \sin2\theta$

c) $(\cos x-\sin x)^2 + (\cos x + \sin x)^2 = 2$

d) $\tan(x+\frac{3\pi}{4}) = \frac{tanx-1}{1+tanx}$

e) $\frac{sec^2\theta-1}{sin\theta} = \frac{sin\theta}{1-sin^2\theta}$

f) $\tan^2x - \sin^2x = \sin^2x\tan^2x$

g) $\frac{1}{secx-1} + \frac{1}{secx+1} = 2cotxcscx$

6. Find sin2x and cos2x given that sinx= $\frac{-2}{7}$ and $\frac{3\pi}{2} < x < 2\pi$.